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THE CULTIVATION OF THE BRAZILIAN CEDRELA (CEDRELA FISSILIS VEL) IN PURE STANDS WITH PEST CONTROL

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THE CULTIVATION OF THE BRAZILIAN CEDRELA (CEDRELA FISSILIS VEL.) IN PURE STANDS WITH PEST CONTROL

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1. - INTRODUCTION

The cedrela (Cedrela fissilis Vell) occurs in the natural forests of southern Brazil in the form of scattered trees, which often reach great hights. It is one of the rare species that produces fine woods, presenting fast and satisfactory growth while producing light (density from .450 to .690), durable wood.

The wood of the cedrela is widely used in civil construction, cabinetmaking, vehicle bodies and shipbuilding. As it is well-known in foreign commerce for its outstanding qualities, high prices are being paid for its wood.

Being very susceptible to certain insect pests that can decimate it, the cedrela is permitted to survive by being dispersed within natural forests, surrounded by other arboreal species.

The formation of pure stands was always supposed impossible since concentrated planting increased considerably the possibilities of the incidense of pests.

In recent times, the arrival of highly efficient insecticides permit us to consider its cultivation in pure stands, in an attempt to produce this so widely used wood on an economic basis.

Solis, 1958, shows exceptional results obtained with a species akin, Cedrela mexicana M.G. Roem., grown in Ecuador.

The interest that the possibility of growing cedrela awakens among scientists and land-owners led us to plan and install an experiment which allows studies of pest control along with spacing under local conditions.

2. - MATERIAL AND METHODS

2.1. - MATERIAL

The seeds used to produce the plants required to install the experiment were obtained from selected trees which presented noteworthy qualities as to type, hight and sanitary conditions. The seeds were sown directly in porous clay vases known in Brazil as "torrões-paulistas". They were planted on the final location when four months old.

The soil was plowed and harrowed in preparation for planting. It is a silicate-clay soil with an east-northeast exposure and an average slope of 10%. It is part of the land belonging to the "Secção Técnica de Horticultura" of the "E. S. A. 'Luiz de Queiroz'", whose geographical location is given by its geodesic mark. Latitude: 22° 42' 9" S, Longitude: 47° 38' 8" WG, Altitude: 558, 573 meters.

The climate is subtropical with a hot and rainy summer and cold and dry winter. The average high temperature during the summer (December through March) is 30.2°C and low 18.3°C. During the winter (June through August) the average high temperature is 25.8°C and low 10.3°C. The annual rainfall is from 1200 to 1300 mm.

During December 21,22 and 23 of 1961 the planting was done in open furrows at three-meter intervals.

2.2. - METHODS

A randomized design with split plots was used.

Each treatment intended to control the pests was applied over a plot made

up of three subplots differing in spacing.

2.2.1. - Treatments

Till now, four insecticide applications have been used in pest control, at sixty-day intervals under various forms:

2.2.1.1. - Dieldrex (hexachloro-hepoxi-octahydro-diendomethano-naphthalene) 20% concentration at 1%. The application was done at low volume, using 4.750 liters on the five plots, averaging .950 liters per plot.

2.2.1.2. - Dipterex (dimethyl-hydroxi-trichloro-ethyl phosphonate) .50% concentration at 1%, low volume, using 4.756 liters with an average of 0.951 liters per plot.

2.2.1.3. - Pholidol (dimethyl-paranitrophenylthiophosphate) .60% concentration at 5%, low volume, using 5.242 liters, averaging 1.048 liters per plot.

2.2.1.4. - CONTROL (no treatment)

2.2.1.5. - Gusathion (dimethyl oxo-benzotriazine-methyl phosphoro-dithioate). 20 % concentration at 1%, low volume. 4.700 liters were used, averaging .940 liters per plot.

2.2.2. - SPACING

Each plot contained three different spacings distributed in three subplots:

2.2.2.1. - 3.00 x 1.50 m.
2.2.2.2. - 3.00 x 2.00 m.
2.2.2.3. - 3.00 x 2.50 m.

Each subplot was composed of 63 plants, resulting in 189 plants per plot . the number of replications used was five. In each subplot, the first and last plants of each row were disregarded, leaving 35 plants for study. In the entire experiment, a total of 4.725 plants were used.

2.2.3. - PESTS

The pests considered were:

2.2.3.1. - Hypsipyla grandella (Zeller, 1848) - Lepidoptera Phycitidae. The caterpillars of this species attack young plants and boughs of adult trees, causing the destruction of the terminal buds and the paralyzation of growth. They also attack the fruits and seeds.

2.2.3.2. - Diploschema rotundicolle (Serv., 1834)- Coleoptera Cerambycidae; Macropophora accentifer (Oliv., 1795) - Coleoptera Lamiidae. They are known as "coleobrocas" (borers of the Coleoptera). The larvae are borers of the cedrela.

2.2.3.3. - Oncideres dejeani (Thoms., 1868) - Coleoptera Lamiidae. It is known as a "serrador". The larva is a borer of the cedrela.

The effect of the insecticides cited and the biological study of the pests mentioned including laying seasons, egg locations and their evolution in the larval pupal and adult stages, the number of generations, will all be brought out in this work.

The sprayings have been done every sixty days with a count of the attacked plants.

C O N C L U S I O N S

Thus far, the development of Cedrela fissilis Vell in pure stands has been satisfactory. The average hight obtained by direct measurement of randomly chosen plants, was fifty centimeters eight months after planting.

It must be stressed that the plants vegetated for a period of practically three months since the temperature begins to fall in April, the rains cease nad the leaves fall as winter begins in June.

At each insecticide application, every sixty days, the infested plants were counted. As the experiment was installed during the summer and the plants were sprayed only thirty days afterwards, the occurrence of pests attacking the plants has not been ascertained. The climactic conditions of the approaching winter were not very favorable for the development of pests. For this reason, the incidence of attack is expected to begin next October when vegetative growth begins due to the then caracteristically hot and humid weather here.

S U M M A R Y

The Brazilian cedrela furnishes one of the most valuable woods among native species.

It is fast growing, produces seeds regularly and can also be propagated vegetatively; however, when grown in pure stands it has been limited by the pest which attacks it (Hypsipyla grandella Zeller). In natural forests it occurs as isolated trees in which way it can survive.

An experiment has been organized on land of the "Escola Superior de Agricultura "Luiz de Queiroz" using randon designs subdivided in blocks. These blocks represent the treatments to be applied in the pest controle which comprise three sub-blocks, each with a different spacing of plants. The treatments in the blocks are represented by the insecticides used: Dieldrex, Diptherex, Pholidol, Gusathion and control. The spacings used in the sub-blocks were: 3.00x1.50 m; 3.00x2.00 m.; and 3.00x 2.50 m. The number of plants per sub-block was 63 in order to retain 35 plants for analysis.

The number of replications was 5 and the experiment involved 4.725 plants. It is an experiment destined for good response if the results are favorable, which is to be expected considering the pest controle achieved so far.

LITERATURE CITED

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